

LIST OF ANDOVER VARIABLES

<u>CODE</u>	<u>VARIABLE</u>	<u>DESCRIPTION/COMMENTS</u>
AGE	age of house when sold	year built - year sold
BDR	# of bedrooms	
*BM	basement	yes = 1, no = 0
BTR	# of bathrooms	
DBH	distance to recreation site - Bunker Hill	measured in miles to the closest entrance
*DBHO	observations outside 1.5 miles of Bunker Hill	yes = 1, no = 0
*DBHOH	observations within 1.5 miles of Bunker Hill	yes = 1, no = 0
DBR	distance from Burlington Railroad	distance of 50 ft. = .25, distance between 50 and 500 ft. = .5, distance greater than 500 ft. = 1
DBS	distance from Blaine Senior	distance of 1/4 mile = .25, distance between 1/4 and 1/2 mile = .5, distance greater than 1/2 mile = 1
DCBD	distance to central business district	closest CBD in miles
DCL	distance to recreation site - Crooked Lake	measured in miles to the entrance (Crooked Lake and Bunker Hill are not perfect substitutes)
DCLE	distance from Crooked Lake Elementary	distance of 1/4 mile = .25, distance between 1/4 and 1/2 mile = .5, distance greater than 1/2 mile = 1

*Dummy variable.

<u>CODE</u>	<u>VARIABLE</u>	<u>DESCRIPTION/COMMENTS</u>
*DCLQ	observations within .25 mile of Crooked Lake	yes = 1, no = 0
*DCLO	observations outside .25 mile of Crooked Lake	yes = 1, no = 0
DCRJ	distance from Coon Rapids Junior	distance of 1/4 mile = .25, distance between 1/4 and 1/2 mile = .5, distance greater than 1/2 mile = 1
DCRS	distance from Coon Rapids Senior	distance of 1/4 mile = .25, distance between 1/4 and 1/2 mile = .5, distance greater than 1/2 mile = 1
DES	distance to elementary school	elementary school that hypothetical student would attend for each given observation
DFMJ	distance from F. Moore Junior	distance of 1/4 mile = .25, distance between 1/4 and 1/2 mile = .5, distance greater than 1/2 mile = 1
DHE	distance from Hoover Elementary	distance of 1/4 mile = .25, distance between 1/4 and 1/2 mile = .5, distance greater than 1/2 mile = 1
DHS	distance to high school	high school that hypothetical student would attend for each given observation
DHWY	distance from highway	distance to closest access highway in miles
DJHS	distance from junior high school	junior high school that hypothetical student would attend for each given observation
DLF	distance from landfill	measured in miles
*DLF1 - DLF18	DLF dummies in .25 miles DLF 12 had 0 observations	yes = 1, no = 0
DMBE	distance from Morris Bye Elementary	distance of 1/4 mile = .25, distance between 1/4 and 1/2 mile = .5, distance greater than 1/2 mile = 1

*Dummy variable.

<u>CODE</u>	<u>VARIABLE</u>	<u>DESCRIPTION/COMMENTS</u>
DSCE	distance from Sand Creek Elementary	distance of 1/4 mile = .25, distance between 1/4 and 1/2 mile = .5, distance greater than 1/2 mile = 1
DRJ	distance from Roosevelt Junior	distance of 1/4 mile = .25, distance between 1/4 and 1/2 mile = .5, distance greater than 1/2 mile = 1
DWAE	distance from Washington Elementary	distance of 1/4 mile = .25, distance between 1/4 and 1/2 mile = .5, distance greater than 1/2 mile = 1
DWD	distance from waste dump	measured in miles
DWDT	distance from waste dump trend	DWDT = 1 for first 1/4 mile, DWDT = 2 for second 1/4 mile, etc.
*DWD1 - DWD16	DWD dummied in .25 mile, DWD 15 had 0 observations	yes = 1, no = 0
DWE	distance from Wilson Elementary	distance of 1/4 mile = .25, distance between 1/4 and 1/2 mile = .5, distance greater than 1/2 mile = 1
*FP	fireplace	yes = 1, no = 0
GFA	ground floor area	measured in square feet
*GG	garage	yes = 1, no = 0
HDENS	housing density	number of houses per one-half map section (one-half map section is approximately one-half square miles)
HUDENS	housing unit density	number of persons per housing unit according to census block
LBDR	natural log of bedrooms	
LKV	Lake view, (Crooked and Round Lakes)	observations right on lake = .25, 1/4 mile from lake = .5, distance greater than 1/4 mile = 1

*Dummy variables.

<u>CODE</u>	<u>VARIABLE</u>	<u>DESCRIPTION/COMMENTS</u>
LLSZ	natural log of lot size	
LPV	natural log of property values	
LSZ	lot size	square footage of land area
*MWTR	observations with municipal water	yes = 1, no = 0
*OOHS	1 and 1/2 stories (housing style)	one story with attic
OQRS	1 and 1/4 stories (housing style)	one story with crawl space
PDEN	person density	number of persons per room (HUDENS/RM)
PV	property value	net sale price of real estate measured in 000s of dollars
*RAM	rambler (housing style)	basement if present is completely underground (yes = 1, no = 0)
RM	# of rooms	
SD	sale date	time trended according to quarter year (1st quarter = 1, 2nd quarter = 2, etc.)
*SD1 - SD15	dummy variable for each quarter SD1 = second quarter of 1978	yes = 1, no = 0
SDTRND	sale date trend	$\sum_{i=4}^{15} (\mathbf{SD_i} \times \text{coefficient of } \mathbf{SD_i})$
*SE	split entry (housing style)	1/2 basement underground, 1/2 basement above ground, doorway and foyer in between basement and first floor. (yes = 1, no = 0)

*Dummy variable.

<u>CODE</u>	<u>VARIABLE</u>	<u>DESCRIPTION/COMMENTS</u>
*SL	split level (housing style)	doorway is on first floor, 1/2 first floor elevated, basement is area under elevated portion of first floor only, 1/2 basement underground, 1/2 basement above ground
*TS	2 stories (housing style)	yes = 1, no = 0
*WWTR	observations with well water	yes = 1, no = 0

*Dummy variable.

FURTHER COMMENTS ON THE VARIABLES FROM THE ANDOVER SAMPLE

BTR - Bathrooms were assessed according to the following table:

Assigned Value	Description
1	Shower-bath, lavatory and sink
3/4	Shower stall, lavatory and sink
1/2	Lavatory and sink

Source: Anoka County Assessment Office

DBH - Bunker Hill Regional Park is a 1,435 acre recreational facility which is not a perfect substitute for the Crooked Lake recreational area. Present activities are: camping, picnicking, hiking, riding, swimming, winter sports and golfing.

DCDB - Closest CBD in miles
(Andover Community Shopping Center or Village Ten Shipping Center)

DCL - The recreational area adjacent to Crooked Lake offers: picnicking, boating, fishing and swimming.

DHWY - Distance to closest highway access in miles (Highway 10/47 or Route 1)

DLF - Measured in miles (The municipal landfill is located at the intersection of Crosstown Blvd. and Andover Blvd., next to Coon Creek in the city of Andover.)

DWD - Measured in miles (The waste dump is located on Musket Ranch, 2052 Bunker Lake Blvd., Andover)

LSZ - Observations located in unplatted (undeveloped) areas had the lot size in acres recorded on the sales sheet. Lot sizes for observations in platted areas had to be measured from 1/2 section maps (approximately 1/2 acre) obtained from the county surveyor's office.

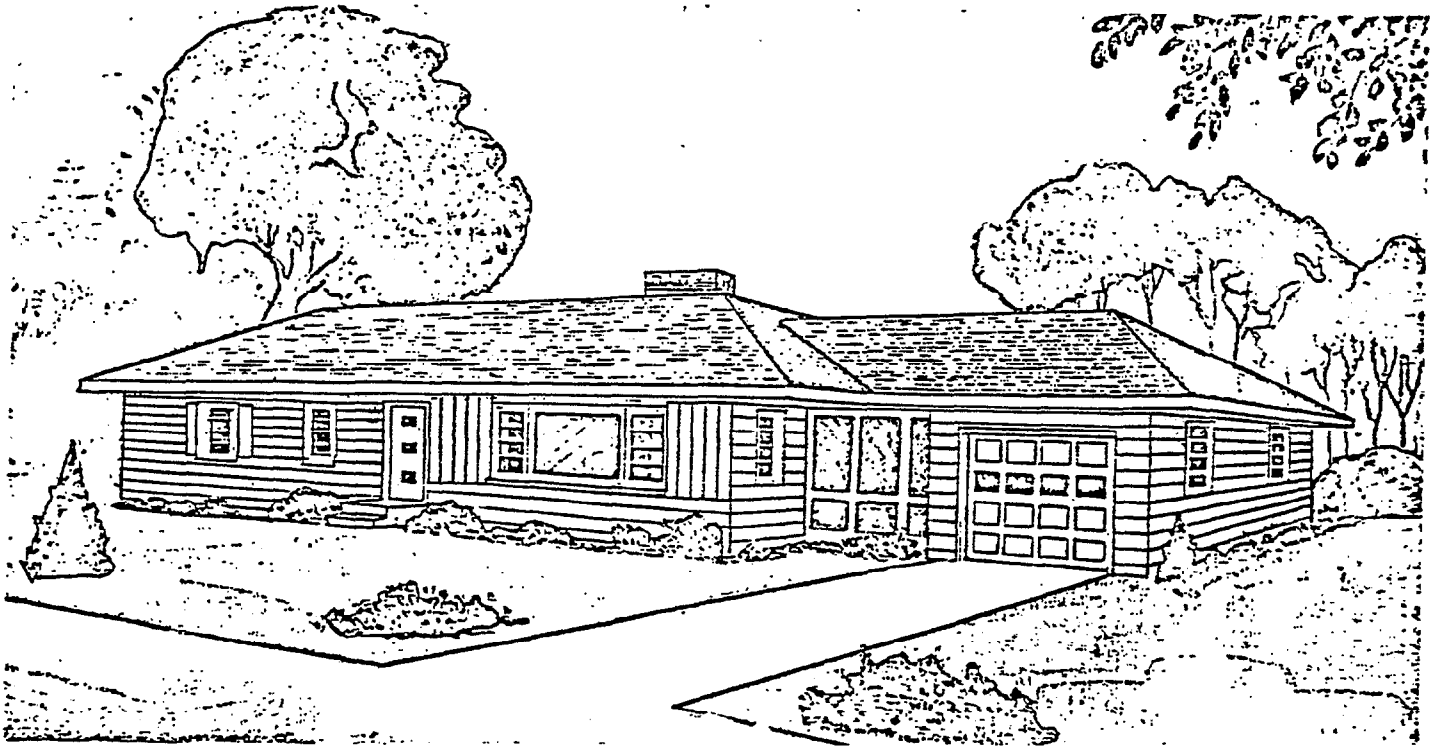
RM - Room and housing unit density data were not available for some observations. Therefore, the average number of rooms, bedrooms, bathrooms and housing unit density were computed and substituted for the missing data.

Sample Mean:	Used	Actual
Rooms	7	7.18
Bedrooms	3	3.09
Bathrooms	1	1.33
Housing Unit Density	3.7	3.7

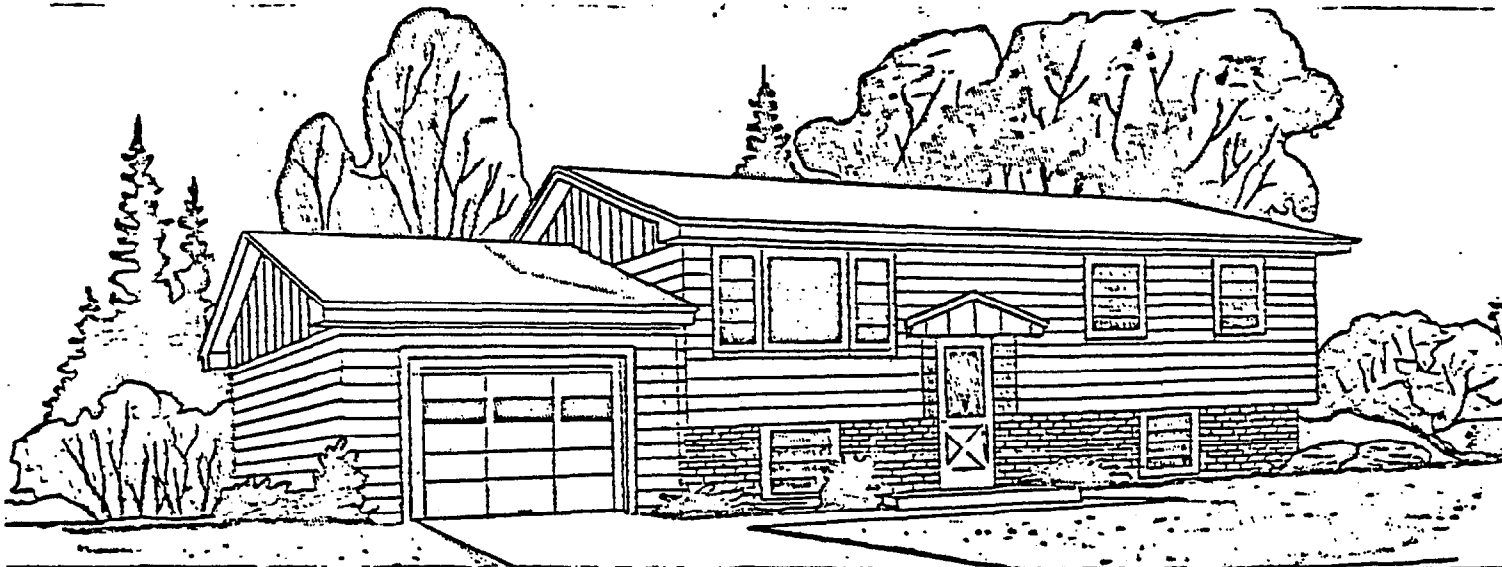
The different housing styles (two stories, one and one half stories, split entry, split level and ramblers) are illustrated below.

HOUSING STYLES

Rambler



Split Entry



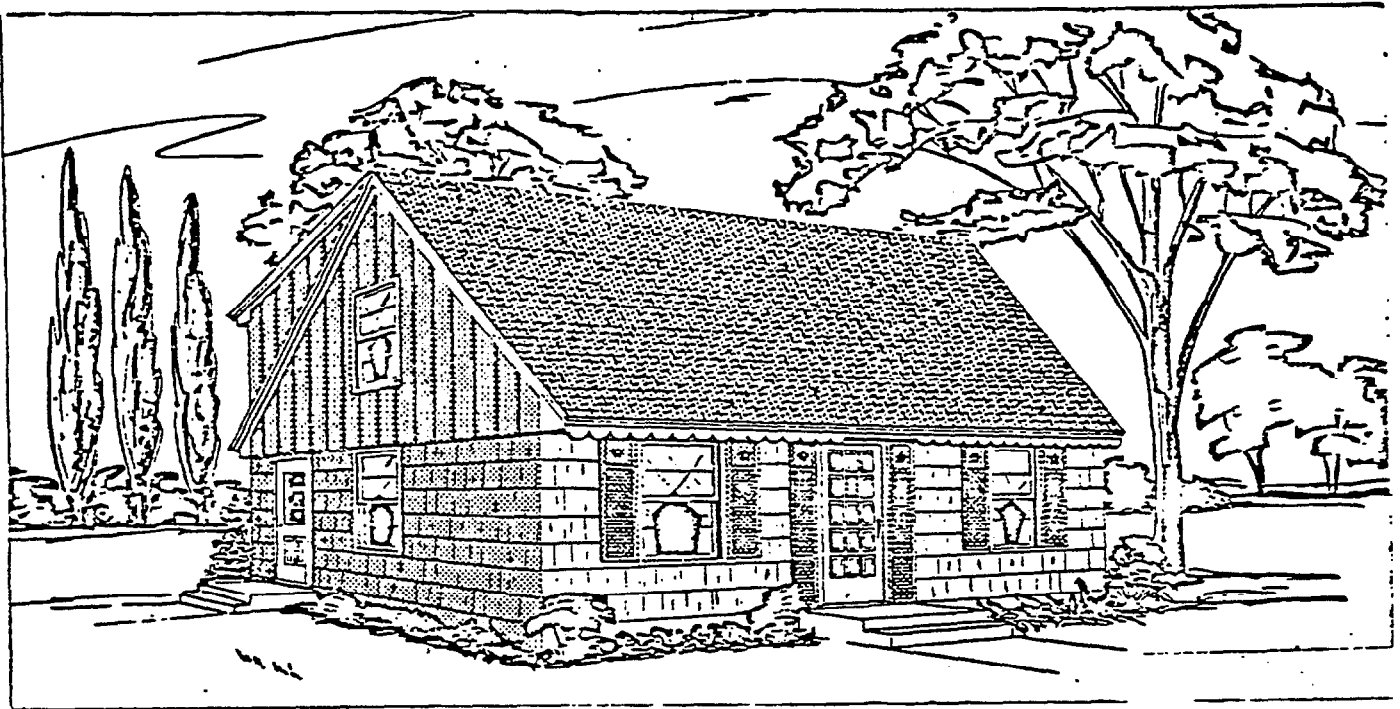
Split Level



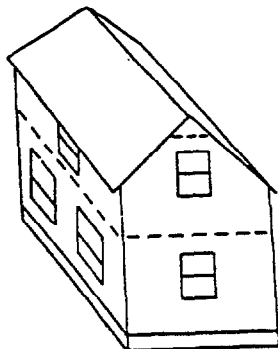
2 Stories



1 and 1/4 Stories



1 and 1/2 Stories



1-1/2 Story

Deleted Observations

Observations were deleted from both the Pleasant Plains and Andover samples for the following reasons:

1) If a lot was subdividable, generally indicated by a size of two and one half acres or greater for the Andover sample, and two acres for the Pleasant Plains sample, the observation was deleted.

Two observations with lots greater than two acres were not deleted from the Pleasant Plains sample because they were not subdividable.

2) For Pleasant Plains three lots with mansions were deleted. The special characteristics of mansions combined with their limited number was expected to bias the model.

3) Observations with homes damaged by fire were deleted. These observations were deleted because the impact that the fire had on each property's value was unknown, even after repairs.

4) All non-single family homes (e.g., apartments and commercial buildings) were deleted.

5) Whenever a transfer was: a gift, a forced sale, an inheritance, an auction sale, to or from a government or tax exempt organization, the observation was deleted. This is because price agreements in any of these instances will not adequately reflect market values.

6) Sales which occurred between relatives were also deleted. In the case of Pleasant Plains, these sales were identified by a low price, i.e., \$1.00. In the face of uncertainties, transactions which occurred between individuals with the same last names were also deleted from the Pleasant Plains sample. For Andover, such sales were indicated on the record card.

7) Three observations with two dwellings on one lot were deleted from the Pleasant Plains sample because the value of the individual dwellings could not be accurately assessed.

8) Commercial properties (except for those zoned Rural Highway Business in Pleasant Plains) were deleted for a number of reasons. Residential and commercial properties cannot be included in the same sample because they each belong to distinct markets. The impact of contamination on each will, therefore, differ.

Lots zoned Rural Highway Business (RHB) were not deleted because preliminary regression analysis revealed that it was not a significant factor in determining property values. (See Section under "Further Comments on Pleasant Plains Variables," Appendix C for a description of RHB.)

9) Observations were deleted if a variable on the property record card was missing or uninterpretable.